

### **REMARKS**

Applicant respectfully requests reconsideration.

Claims 66-99 and 134-136 were previously pending in this application with claims 69, 70 and 74-87, and 98 being withdrawn from consideration.

Claims 134-136 are cancelled without prejudice or disclaimer.

Claims 66-70, 72, 75 and 79-80 are amended without prejudice or disclaimer. Support for these amendments can be found in the specification at least in Figs. 9-15, page 4 lines 10-12 and 20, page 5 lines 3-5, page 15 lines 3-27, page 16 lines 19-20 and 22-24, page 20 lines 15-23, page 22 lines 19-22, page 23 lines 5-9, page 27 line 27 through to page 28 line 2, page 28 lines 11-18.

New claim 137 has been added. Support for this new claim can be found in the claims as originally filed and in the specification as listed above.

As a result, claims 66-99 and 137 are pending, with claims 66-68, 71-73, 88-99 and 137 currently under examination.

No new matter has been added.

#### ***Rejections Withdrawn***

Applicant acknowledges and thanks the Examiner for reconsideration and withdrawal of the double patenting rejection and the rejection under 35 U.S.C. § 102(f).

#### ***Claim Objection***

Claim 98 has been objected to as having an improper status identifier. Applicant has updated the status identifier of claim 98 to read withdrawn, as it depends from a withdrawn claim.

Withdrawal of this objection is respectfully requested.

#### ***Rejection under 35 U.S.C. §112, first paragraph***

Claims 66-68, 71-73, 88-99 and 134-136 are rejected under 35 U.S.C. §112 as failing to comply with the written description requirement. According to the Examiner, the amendment to claim 66 made in the last filed amendment constitutes new matter because the specification does

not support establishing a timing event while the polymer is moving through a detection zone. To support his position, the Examiner cites published paragraph [0008], and then recites a passage found in published paragraph [0009] which states “providing a detection zone ...; establishing a timing event; moving the polymer through the detection zone ...”.

Applicant respectfully disagrees. A full reading of the specification, including Figures and the cited text, clearly evidences that timing events occur while polymers are moving through the detection zone. Figs. 9-15, and particularly the graphs in such Figures and their accompanying text, clearly show that the timing event occurs while signals (e.g., photons) are sequentially detected. As should also be clear, signals are detected while the polymer is in the detection zone. For example, in Fig. 10, each of the three top schematics represent the position of polymer, tags and detection zone at three different timing events. In each of these instances, the polymer is moving through the detection zone. The specification states that “Fig. 10 is a schematic representation, at three different timing events, of a polymer with a first and second tag passing through the detection spot.” (See page 15 lines 10-11.) A similar description is provided for Fig. 11. (See page 15 lines 15-17.) With respect to Fig. 10, the specification further states “while the first tag is present in the detection spot and is emitting photons, a first timing event occurs.” (See page 22 lines 19-20.) The specification further teaches that detectable labels attached to a polymer can be detected sequentially, and that when detected sequentially, the signals are viewed in a signal intensity versus time graph. (See page 16 lines 19-20 and 22-24.) The specification further states that

“As the tags of the polymer pass through the detection spot, the laser causes them to fluoresce. The photons emitted from the fluorescing tags are collected and continuously counted by the detection system from the time they enter the detection spot until they exit the detection spot. The photon count restarts at a timing event, which occurs when the first tag is in the detection spot. This provides a first count of photons emitted by the first tag in the detection spot before the timing event and a second count of photons emitted by the first tag in the detection spot after the timing event.” (See page 20 lines 15-21, emphasis added.)

The specification further states that the technique of dividing data acquired over a larger time (or space) into smaller components for analysis (i.e., binning) “may occur while a detection signal is gathered in a detection system, or ... as an analysis step applied to a detection signal

that was previously gathered by a detection system.” (See page 23 lines 4-7.) Moreover, the specification further states that “timing events occur periodically, separated by a common reset time that divides the photon counts collected from the detection spot into a sequence of bins.” (See page 23 lines 9-11.)

Thus, when taken together, these teachings clearly evidence that Applicant clearly contemplated and described timing events that occur while the polymer is moving through the detection zone.

Finally, the passage relied upon by the Examiner does not exclude the occurrence of a timing event while the polymer is moving through the detection zone. Nothing in that passage imports a temporal order to the occurrence of the timing event and the moving of the polymer through the detection zone.

Applicant notes that claim 66 has been amended in a manner that is consistent with the teachings in the specification, including Figures, as filed. No new matter existed in the claim prior to this amendment and none has been introduced by way of this amendment.

Reconsideration and withdrawal of the rejection is requested.

***Rejection under 35 U.S.C. §112, second paragraph***

Claims 66-68, 71-73, 88-99 and 134-136 are rejected under 35 U.S.C. §112 as being indefinite. According to the Examiner, the amendment made to claim 66 in the last filed amendment is vague and unclear particularly because “it is unclear as to what exactly defines the wording ‘upon the establishment of the timing event’.” Claim 66 has recited “establishment of a timing event” since the application was filed, yet the term has only become indefinite recently. Respectfully, the Examiner appears to be carrying out prosecution in a piecemeal manner. Such piecemeal examination is discouraged by the USPTO which takes the position that “the examiner ordinarily should reject each claim on all valid grounds available.” MPEP 707.07(g). Contrary to the Examiner’s assertion, this rejection was not necessitated by Applicant’s previous amendment since the basis for the rejection rests solely on how and when a timing event is established, and such issues should have been raised by the Examiner in the first and/or second Office Action, the latter of which was a final action.

Nevertheless, in a good faith effort to further prosecution, Applicant has amended claim 66 to recite the detection of signal from unit specific markers before and after a timing event. As would be appreciated by one of ordinary skill in the art upon a full reading and consideration of the specification, a timing event resets a signal count. (See for example page 20 lines 18-19 which states that “the photon count restarts at a timing event, which occurs when the first tag is in the detection spot” with reference to Fig. 9.) The specification further teaches that “while the first tag is present in the detection spot and is emitting photons, a first timing event occurs” (see page 22 lines 19-20) and “timing events occur periodically, separated by a common reset time that divides the photon counts collected from the detection spot into a sequence of bins” (see page 23 lines 9-11).

Applicant maintains that claim 66 and its terms were definite before and after the instant amendment, and that new claim 137 is similarly definite for at least the reasons set forth above. Reconsideration and withdrawal of this rejection is respectfully requested.

***Rejection under 35 U.S.C. §102***

Claims 66-68, 71-73, 88-99 and 134-136 are rejected under 35 U.S.C. §102 as being anticipated by Chan (U.S. Patent No. 6,355,420).

Applicant respectfully disagrees with the Examiner’s conclusion that the claims as previously pending were anticipated by Chan, for at least the reasons of record as well as reasons set forth herein, which are equally applicable to the claims as previously pending. The Examiner has failed to establish whether by explicit teaching or inherency that Chan teaches all of the limitations of the claims as previously pending. The Examiner has apparently disregarded, inter alia, limitations relating to identifying a proportion of an emission signal corresponding to a distance traversed by a unit specific marker at a timing event, and using such proportion to determine the distance separating two unit specific markers bound to a polymer. None of the sections cited by the Examiner provides these teachings.

However, in a good faith effort to further prosecution, Applicant has amended claim 66 to recite more explicitly that signals from a labeled unit specific marker are detected before and after a timing event, as the unit specific marker passes through the detection zone. Signals received before and after the timing event together define the total emission signal from the unit

specific marker. Thus, the claims require detection and distinction of signals that occur before and after a timing event.

Chan discloses detection of total emission signals from unit specific markers but it does not teach detecting proportions of such signals that occur before and after a timing event that occurs while the unit specific marker passes through the detection zone. Chan cannot teach, *inter alia*, identifying a proportion of the emission signal that corresponds to a distance of the detection zone traversed by the unit specific marker by the timing event, or determining the separation distance between unit specific markers by comparison of the proportions of the first and second emission signals (i.e., limitations of the claims as previously pending and as currently amended). For at least the same reasons, Chan cannot teach the limitations of the dependent claims such as but not limited to the various ways of identifying proportions of emission signals (as recited in claims 67 and 68), the use of a single timing event that divides two emission signals (as recited in claim 72), and determining the separation distance between two unit specific markers using the proportions of emission signals from such markers (as recited in claim 73).

Chan does not teach all the limitations and thus cannot anticipate the rejected claims or new claim 137.

Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 66-68, 71-73, 88-99 and 134-136 are rejected under 35 U.S.C. §102 as being anticipated by Gilmanshin (U.S. Patent No. 6,263,286).

Applicant respectfully disagrees with the Examiner's conclusion that the claims as previously pending were anticipated by Gilmanshin, for at least the reasons of record as well as reasons set forth herein, which are equally applicable to the claims as previously pending. The Examiner has failed to establish whether by explicit teaching or inherency that Gilmanshin teaches all of the limitations of the claims as previously pending. The Examiner has apparently disregarded, *inter alia*, limitations relating to identifying a proportion of an emission signal corresponding to a distance traversed by a unit specific marker at a timing event, and using such proportion to determine the distance separating two unit specific markers bound to a polymer. None of the sections cited by the Examiner provides these teachings.

However, in a good faith effort to further prosecution, Applicant has amended claim 66 to recite more explicitly that signals from a labeled unit specific marker are detected before and after a timing event, as the unit specific marker passes through the detection zone. Signals received before and after the timing event together define the total emission signal from the unit specific marker. Thus, the claims require detection and distinction of signals that occur before and after a timing event.

Gilmanshin discloses detection of total emission signals from unit specific markers but it does not teach separating such signals, as required by the rejected claims (i.e., Gilmanshin does not teach detecting proportions of such signals that occur before and after a timing event that occurs while the unit specific marker passes through the detection zone). Gilmanshin cannot teach, inter alia, identifying a proportion of the emission signal that corresponds to a distance of the detection zone traversed by the unit specific marker by the timing event, or determining the separation distance between unit specific markers by comparison of the proportions of the first and second emission signals (i.e., limitations of the claims as previously pending and as currently amended). For at least the same reasons, Gilmanshin cannot teach the limitations of the dependent claims such as but not limited to the various ways of identifying proportions of emission signals (as recited in claims 67 and 68), the use of a single timing event that divides two emission signals (as recited in claim 72), and determining the separation distance between two unit specific markers using the proportions of emission signals from such markers (as recited in claim 73).

Gilmanshin does not teach all the limitations and thus cannot anticipate the rejected claims or new claim 137.

Reconsideration and withdrawal of this rejection is respectfully requested.

**CONCLUSION**

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. C0989.70037US00.

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Respectfully submitted,

By 

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